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BY MEDICAL EXAMINER ALFRED HOSMER, M. D.,
President of the Massachusetts Medico-Legal Society.

THE programme which announces the arrangements that have been made for the current anniversary of the Massachusetts Medical Society presents an unaccustomed feature, and intimates the existence of an organization hitherto unknown, namely, the Massachusetts Medico-Legal Society. To-day that organization asks a kindly recognition, and seeks admission to the large circle of associations whose origin and preservation are due to the intelligence and industry of thoroughly educated and devoted medical men; and of which it may be said that they are at the same time the evidence and the means of a broader and better culture and a more active progress in science. By the power of combination they are the strength of our profession, and through the salutary influences which they cannot fail to exert become indispensable elements in the safety of the commonwealth.

The objects of this new society are briefly stated in the second article of its constitution in the following language: —

“Its purposes shall be to elevate the official character of the medical examiner, and to assist him in the discharge of his duties; to collect and utilize such facts as have a medico-legal value; and to excite a general interest in the subject of forensic medicine, and to promote its successful cultivation.”

In deference to the wishes of the executive board, I shall attempt to set forth the importance of these several purposes. Although it is not possible to suspend the operation of that law which obliges the common man to speak common things, I hope to utter some word which shall eventually secure the good will, sympathy, and efficient coöperation of all who have a correct appreciation of the departure which is the essence of this whole movement, one of whose products is the medical examiner. That official owes his birth to the pressing and unavoidable necessity which had arisen for making an entire change in that method of initiating certain legal proceedings in which the late coroner was at times tempted to take so busy and undignified a part. He was

created by a legislative act which may fairly be called revolutionary, for it abolished every trace of an ancient system that was firmly incorporated into the usage of many generations, and which, in its old age, instead of gracing itself with those qualities which would make it venerable and strong, disgraced itself by the exhibition of a degree of corruption that decency and integrity could no longer tolerate. As a consequence the coroner was required to pay on demand the debt of unworthy ambition, and to make a compulsory exit. Forcibly impressed by the overpowering weight of executive decree, he discovered for himself a special phase of the law of gravitation. But at this point the claims of simple justice must not be forgotten. Although the name of coroner was so often accepted as the synonym of incompetence, which was bad, or of dishonor, which was worse, there were memorable exceptions, notably among physicians who held the office, and who saved for the old order of things what little there remained to it of good repute or of utility to the public.

Thus an immense advance had been made in the direction of reform; yet it was evident that a fatal mistake would be committed unless it were assumed that what had been accomplished by the powers resident in the State House was only initial and not final. The new system could be aptly compared with a vigorous infant, born to a cordial welcome, endowed with a certain tenacity of life, readiness for growth, and capacity for development, but which without intelligent care and that opportunity which is its natural right is doomed to an imperfect life, and is defrauded of the possibilities to which it might have attained. If this movement were left alone at the point to which it had been brought by the legislature and the governor and council, the community could never have derived from it the full benefit which it is capable of yielding; disappointment and disrepute would have overtaken its projectors and advocates; it might have forfeited all claim to the name which was its early strength, and which justified and secured the measures that it demanded; it would have been a substitution, of uncertain value, instead of a genuine reformation. In view of these considerations, as soon as the executive had made the appointments which were required by that act which in its very first and shortest section effected the extinction of the coroner, attention was immediately directed to the needs of the medical examiner, especially in connection with the conditions upon which depended his complete success in an untried line of duty and action.

Official quality is but the exercise and expression of personal character, and the perfection of the former will be in inverse proportion to the defects of the latter. Any scheme looking towards the elevation of the official quality of the medical examiner in a general sense must deal with him directly as an individual. With that idea, this society pro-

poses, in the first place, to protect him against the dangers of isolation, which so encourages degeneration and alienation and tends to produce an individuality composed of the most vicious elements: of self-conceit, a thing of luxuriant growth that thrives best upon a barren soil; of wrong-mindedness in much that relates to processes of thought and of logic; of error in much that relates to matters of fact. On the other side, it will open to him all the advantages of association, without which firm and symmetrical development is scarcely possible for the ordinary man. Within its circle he must acquire that true and exact self-appreciation which comes only of frequent and forcible contact with equals and superiors. In all difficult and unsettled questions which concern him as an officer, he will be able to hold his opinions in equilibrium with the average judgment of his official brethren. In all his methods he can be guided by the example of the most competent and most accomplished. He will be enabled to increase his knowledge rapidly and readily by the addition of the best ideas of all those whose thoughts and studies have the same general scope and purpose as his own. The rule of his official conduct will be a code of ethics, not arranged by himself, but an utterance which unites in itself the purest voices of the best men. If necessary, his *morale* will be reënforced upon the principle by which the man who, in a single-handed combat, would fail to gain any reputation for bravery may become an efficient soldier in the ranks if flanked on each side by a good fighter. And the cultivation of courage is not a thing of secondary importance. This quality used to be designated by a term that is in close etymological relation with the word virtue. In it certainly lies the possibility of many virtues. Without it let no one think of honesty and its derivative, individual consistency. Even imperfect honesty, if the phrase may be allowed, is a disqualification for which there is no possible compensation.

From that point of view which regards intellectual things it is easy to see the benefits which will accrue from the formation of a society. With useful subjects discussion and debate are an invigorating form of mental exercise, and encourage precision in the processes of thought. Distinctness and exactness cannot be asserted of any conception until it has been expressed in clear and intelligible phrase. Perhaps in the realm of the immaterial there prevails a law analogous to that which determines propagation in the human species, so that every idea must acknowledge a double parentage, known or half known. At any rate many a brain has been fertilized and stimulated into fruitful activity by the force of a suggestion opportunely dropped. Competition and congregation quicken both motions and emotions. A race against time will not bring out the best speed, and cheers come only from a crowd. It is believed that the medical examiner has entered upon a new career with all the impetus that comes of an enthusiasm which is substantial and

not spasmodic, and that, whatever he may achieve, his aim will not be below the level of that which his ablest colleague may attain.

The society realizes that, if it would acquire all the benefits of combination, it must not simply stand for a result which is obtained by the arithmetical process of adding together the elements of which it is to be composed, but must represent something like the phenomena of a chemical union which shall produce some qualities unknown in the constituents, and lead to some new expression of force. It will endeavor to confer upon membership such value as will attract those medical men whose tastes and education interest them in its objects. It will strive to give such a position to the medical examiner that it will not be in vain that the office seeks the strongest in our ranks, more properly among those not yet arrived at the middle period of life. It will attempt to establish for the appointment the reputation of a professional promotion, and as a vacancy may now and then occur, using its influence to secure a substitute who shall be superior to the original, it will certainly do something towards improving the official quality of the medical examiner.

But these matters are prospective, and of less immediate importance than the necessity of furnishing at once that which shall relieve the inexperience of the new officer, and render some aid in the discharge of his duties. While this object must always hold a high place among the purposes of the society, the obligation which it imposes can never be more pressing than it now is.

In his official capacity the medical examiner represents the commonwealth, who, in the powers with which she has invested him, has given us the measure of her confidence and expectation. The former must not be abused, and the latter must not be disappointed. As the very first preparatory step he must know the provisions of Chapter 200 of the Acts of 1877, which defines and confers his authority, and determines the modes in which it is to be exercised. But to read language as a grammatical combination of words is one thing, while it is quite another to reveal its true and intended meaning by a proper interpretation. The General Court has not always declared its will in expressions of such perspicuity that all thinking men have been agreed as to the particular shade of thought which has moved it to action. It is possible that the excellent law which is designed to regulate medical examinations and certain proceedings subsequent thereto may not be clear and explicit at all points. And in anticipation of any doubts and differences of opinion that in this connection may arise in the minds of medical examiners, attention will soon be asked to an exposition of this subject from one of our associate members who has a parental interest in the statute, and will speak with the advantage of having known it in the embryonic state. In this matter it is best that the medical

examiners should realize and remember their dependence upon another profession. And if at any other time than that of some urgent necessity they shall find themselves attempting to translate some legislative dialect into plain English, let them imagine an autopsy in the hands of an attorney, or ask the value of any opinion which a counselor at law should offer upon a difficult question in scientific medicine. Important official relations with the lower courts ought to place within easy reach advice and assistance from competent judicial sources.

Having thus obtained the best possible definition of his position under the law, and of the functions which appertain to his office, the medical examiner will discharge his duties with a facility and success which will depend upon his skill in exposing for inspection the various parts of the body, and his ability to recognize and appreciate any deviations from the normal standard of structure. Though he cannot command all the advantage with which the accomplished pathologist would approach such work, from the instructions of the latter he may derive very great assistance and may learn the most expeditious manner of supplying any defects that exist in his own knowledge of morbid anatomy. A part of his business is to make a scientific investigation, the field of which is the human body. He must be able to differentiate the true pathological changes which are in some way associated with one or more forms of what we call disease; firstly, from those conditions which depend solely upon the mode of dying or the circumstances under which death occurs; and, secondly, from the simple post-mortem alterations which, though often quite striking, only prove that certain tendencies, dangerous in themselves, are no longer restrained by an active vital force. In the wide range of pathological phenomena distinction must be made between those which, as being inevitable, are in a certain sense natural and those produced by some mechanical, chemical, or toxic agency. Still farther, it is of the utmost importance to determine the relation which exists between the death that has occurred and any organic lesion which the eye may detect with or without microscopic aid. It sometimes happens that an autopsy, through its failure to discover anything wrong, may be unable to explain and justify the fact of death; and it is possible that dissolution now and then depends upon some invisible and inappreciable cause which is quite independent of marked and obvious changes that may be disclosed in the progress of a medical examination. However this may be, the lessons of the pathologist are not the sole reliance, and many a problem that cannot be solved by the rule of pathology is transformed into a comparatively easy question when brought into the presence of the chemist. When by the propriety or necessity of a particular case the medical examiner is admonished to invoke the aid of chemistry for the completion of a work that he is powerless to finish, the preliminary arrangements must include such preparation as will

best facilitate and render most efficient analytical search by suitable tests, and also such preservation, with sure means of identification, as will prevent any violation of the law of evidence from nullifying testimony that is intrinsically good. With this brief allusion I leave these points to be stated with due fullness and force by gentlemen who will command an authority that is accorded only to those who have made thorough studies of special subjects.

The collection of medico-legal facts is to be effected by a very simple and certain method. According to a schedule which is intended to touch all necessary points, every medical examiner within the jurisdiction of this organization is required to "forward to the corresponding secretary a report, as full and complete as possible, of each case which shall receive his official attention." Through its representatives the society will obtain contributions from almost the whole area of the State. The field is a large and tolerably rich one, but its fertility will depend upon the care and attention with which it is cultivated; upon the degree of thorough and appreciative observation which is bestowed upon the several cases. A summary of the products of the first culture, assorted and arranged by a careful hand, will soon be presented to you. It deserves some distinction as being the first attempt to embody in a single report those facts which make up the history of Massachusetts during a period of six months in all that pertains to deaths known or supposed to be from violence. It must contain material which is capable of being wrought into that more perfect and elaborate form which, in the higher sense of the term, constitutes an acquisition in science. The regular publication of facts thus secured and certified is a process of utilization for general purposes; but in a special way it will benefit the individual medical examiner by enabling him to appropriate for his own use something from the annual experience of the whole corps. It will make such addition to his knowledge as will render the vision keener while it enlarges its range, so that in each succeeding year observation will be more accurate and more prolific.

The average Massachusetts ear has rarely heard of forensic medicine; it is not a familiar designation. Although a necessary thing in the social fabric, it has had but a vague and ill-defined existence. Its importance has never been recognized among us with all the formality to which it is entitled. So far as I am aware its cultivation has never held for practical ends the prominent place among the avowed objects of any society that has been formed in the State. However, the department of health of the American Social Science Association is declared to be a "society for the study of sanitary science and medical jurisprudence." The efforts of this body in the latter direction, as the secretary informs me, have not extended beyond a movement which should be accredited to a gentleman whose ready assistance to-day bears

conclusive testimony to his friendship for the medical examiner. That movement aimed at the abolition of inquests as they were.

The province and power of forensic medicine once understood, the interest in it cannot fail to be widely spread. Of the community which finds a representative and an embodiment in each individual member, it is the safeguard. It appeals to the instinct of self-preservation in one of its forms. It furnishes the means of establishing the fact of crime committed against the person, no matter whether that crime be fatal, non-fatal, or, as in certain cases of foeticide, mixed. With the proof of offense it fixes the basis and starting-point of any procedure that proposes to detect the offender, the limits of whose accountability forensic medicine must define in accordance with those distinctions which originate in the difference between a sane mind and an unsound or defective one. In a double sense it is the instrument of right, and in the protection and advantage which it brings it cannot fall below the high place which, with so much enthusiasm, has been assigned to sanitary science as an efficient agent in the hands of philanthropy. Of the many subjects which come within the scope of forensic medicine, although some commend themselves only to medical men, there are others which ought to attract the intelligent thought of non-professional people and receive the benefit of its energy. The deep interest which physicians must take in this branch of their profession grows directly out of their tastes and aptitudes, the quality of their knowledge, and the nature of their occupation. It is their exclusive privilege to be the masters in forensic medicine. Therein they find one more opportunity for the exercise of high abilities and the application of varied attainments, as the requisites for success are a quick and thorough perception, a judicial mind, and a rich and mature experience. From it they derive the advantage of close relations with another form of liberal education. Within the medico-legal domain there is a point at which medicine and law come in contact; their work is that of coöperation; their interests, if not identical, lie along lines that converge to a common end. It is the point at which, on the one hand, scientific investigations are pursued under the protection and according to the forms of law, and, on the other, medical evidence determines the administration of law in consonance with the requirements of justice and of facts.

The time has arrived for calling into existence the forensic physician, properly trained and equipped, and invested with a due rank beside the surgeon, the accoucheur, the oculist, and the aurist. He will forthwith appear as one of the results of the successful cultivation of forensic medicine, which, as being in a certain sense a specialty, should not engross the entire attention of young men, nor should it repel and discourage those who have given their early years to ordinary practice. Specialism finds unfailing strength in general and generous culture; its

object is not to limit but to increase attainment ; it was never intended to pervert the mental vision nor to narrow and cramp the operations of the intellect.

A second result may possibly be found in an improvement in the present irregular, inconsistent, and unsatisfactory method of medical evidence. By the unanimous concession of all honorable men¹ a radical change is needed. Attempts have been made in this direction, but they have not succeeded because they were relatively premature and did not receive the sympathy of the prevailing sentiment. May we not now look for a new system, the details of which are yet to be arranged, through which we shall derive testimony which, as being scientific, shall be impartial, and as being based upon an enlightened experience shall be truly expert ?

It is possible that another result may be expressed in some provision which our medical school may be induced to make for instruction in a department of medical knowledge which its present curriculum does not explicitly recognize. Some of the most important matters which are fundamental to this branch are thoroughly taught, but it still remains for a competent master to point out the relations between these elements and the principal subject, to supply that which other departments are not expected to furnish, and to teach forensic medicine as a whole.

In the dependence of its infancy this society will invigorate itself by contributions obtained from several sources, — from pathology, chemistry, the science of mental disease, and from statute law. In return for the assistance thus rendered it will preserve an unwavering fidelity to the purposes of its organization, and according to its power and its opportunity it will strive to do its full share in the endless work upon which human progress depends. For stability, power, and influence it looks largely to the members of the medical profession, who as medical examiners from its regular constituency or as medical men are in duty bound to extend to it both hands in fellowship. It is now ready to speak for itself in its first communications to the State society. And in explanation of an obvious quality which characterizes a part of them, we will simply remark that the novice can find a safe starting-point only among elementary things.

¹ JOURNAL, vol. xc., page 387.

MICROSCOPIC ORGANISMS IN COCHITUATE WATER.¹

BY ROBERT WHITE, JR., M. D.

THE subdivision of the vegetable kingdom known as the Algæ includes the innumerable vegetable structures, made up of simple cells closely applied to each other or existing separately, which are found in all collections of fresh water exposed for any length of time to the air, and on damp ground and walls. Their great difference in shape and organization is produced by the change in the form, number, and arrangement of the simple vegetable cells, which individually possess the vital physical functions necessary for their growth, development, and reproduction, and which in the higher plants are performed by organs differing essentially in their office and structure.

The class presents a wonderful variety of form, structure, and color, and their presence is so universal that if a quantity of water that has been carefully distilled or boiled till all vestiges of life have been destroyed be exposed to the air for a few days it will be found that several species of Algæ, the germs of which have been introduced from the atmosphere, are flourishing in it. The majority of the fresh-water Algæ are invisible to the naked eye.

The families of the Bacteria and the Vibriones present to the microscopic student the most minute objects that he is called to examine. Averaging, as many of the species do, but from $\frac{1}{1000}$ to $\frac{1}{100000}$ of an inch in diameter, the difficulty of making out their structure and of observing the physiological processes going on in them will be readily appreciated. Their prevailing form is that of a single minute globule, or two or more of these united in a chain, or a filament of varying length and possessed of active motile powers. They are usually associated with the putrefactive process, and their presence in drinking water is generally due to their development among the decaying vegetable structures that are always present to some extent.

The genera of the Coccochloris and Protococcus are numerously represented in our liquid, and are very interesting species, the simplicity of their structure readily permitting the process of reproduction to be observed in them. They furnish typical examples of the primitive vegetable cell, composed of a cellulose envelope lined with a thinner membrane, the primordial utricle, inclosing the nucleus and protoplasmic cell contents of varying shades of green or brown. The species mentioned are also invested singly or in groups by a hyaline gelatinous membrane. (Figure 19.)

The cell thus formed is a complete and independent individual, capable of carrying on all the physiological processes necessary for its nu-

¹ Concluded from page 8.

trition and reproduction. In its simplest form multiplication occurs by binary subdivision: the endochrome (cell contents) gradually assumes an hour-glass form, the central constriction advancing until the two halves of the cell have completely separated and lie in contact within the gelatinous envelope (Figure 19 A); each new cell secretes an envelope for itself, the parent membrane disappears, and the new cells are free to repeat the same process indefinitely; so that there is seemingly no limit to this multiplying power, and it probably closely simulates the process of cell multiplication by which the principal growth and development of the higher plants and animals is attained. Another method of reproduction is by conjugation, where two contiguous cells gradually become fused together, forming a new cell (spore), in which the process of binary subdivision goes on with renewed vigor. (Figure 19 D.)

Scarcely any collection of fresh water can be found that does not contain some specimens of the Desmidiaceæ, a family of confervoid Algæ whose brilliant green color, peculiarity of structure, and variety of form render them most striking objects of microscopic study. Their distinctive feature is that while really unicellular most of the species have a central suture, which gives them a perfect bilateral symmetry indicative of a tendency to divide into two segments, as in *Closterium* (Figure 23), *Cosmarium* (Figure 30), and *Micrasterias* (Figure 26). Multiplication is accomplished by binary subdivision, as seen in Figure 24, each of the resulting separate old halves developing a new valve by budding; and true generation by a process of conjugation of a somewhat higher character than that seen in *Coccochloris*, — the walls of two contiguous cells giving way at the point of contact, the endochromes fuse together and form a spore, which remains dormant for a time and then develops into a perfect type of its species. (Figure 25.)

The beautiful microscopic plants known as the *Pediastrum* present the appearance of a flattened, star-like disk; they are made up by the aggregation of a number of cells in symmetrical order, with hyaline membranes interposed; those forming the periphery of the disk have each a pair of horn-like protuberances, which impart to the plant one of its most characteristic features.

The mode of reproduction in *Pediastrum* furnishes one of the most beautiful illustrations possible of the order and system prevailing in nature, even among the lowest forms of life. Multiplication is carried on by the segmentation of the contents of one of the peripheral cells, until the number of zoöspores equals the number of mother cells in the plant, normally sixteen, but on account of the reproductive process generally going on in one or more of the cells they may reach any multiple of that number. The new-formed daughter cells escape from the mother cell inclosed in the vesicle which originally formed the inner membrane of the parent cell. For an hour after their discharge the new cells are

in active movement within the inclosing vesicle, but gradually lose this motion, and show a tendency to adhere to each other and to arrange themselves regularly in geometrical pattern. At the end of four or five hours they are seen to increase in size, and those on the outside of the circle develop slight protuberances which indicate the coming of the characteristic horns. (Figure 21.) At the end of forty-eight hours the cells are separated only by the thin hyaline membrane investing each, the horns have attained their full growth, and the beautiful and complex organism represented by Figure 22 is formed, in any of the cells of which the same reproductive process may be repeated.

The family of the Diatomaceæ are more universally represented in nature than any other members of the vegetable kingdom; their most striking forms exist in vast numbers in the salt water, but many interesting species are found in both stagnant and running fresh water; they flourish too on the bare ground, in the polar ice, in the air of the ocean hundreds of miles from land, and as parasites on other plants. They differ from all other vegetable cells in the composition of their envelopes; instead of the cellulose, of which these are usually made up, those of the Diatoms are composed mainly of silica, a mineral which enables them to retain their form and to resist processes like the application of heat and acids that are destructive to all other vegetable organisms. This silicious cell wall is sculptured with geometrical figures and lines in such beautiful and intricate designs, and withal so distinct, that their study is the delight of microscopists; and even to amateurs there is no object that can be displayed on the field of the microscope that is of greater interest or beauty. There is an immense variety in the form and size of the valves and the character of the markings; some of these latter are so fine that they occupy a space of 90,000 to an inch, their definition by even the highest power of the microscope becomes a matter of considerable skill, and the highest art of the engraver and draughtsman is hardly sufficient for the reproduction of the beautiful appearances these unicellular plants present on the field of the microscope. The cells are often united in a filament as in *Fragillaria* (Figure 40) and *Melosira* (Figure 46), or in rectilinear or asteroid forms as in *Tabellaria* (Figure 36) and *Asterionella* (Figure 32) by gelatinous connections. In the living state they are usually imbedded in an abundant coat of this substance. The cell contents have not the brilliant green color present in the Desmids and most of the unicellular Algae, but is usually of a yellowish-brown tinge, and is aggregated towards the walls, leaving a clear central space with vesicular nucleus and several translucent globules of varying size and apparently of fatty composition.

In the recent state the presence of the endochrome and the gelatinous coating obscures the silicious sculpturing, and it is only after the destruction of both, which rapidly occurs on the death of the organism, that these markings are to be seen in all their extraordinary beauty.

Our knowledge of many of the physiological processes of the Diatoms is not in a satisfactory state, but it is known that, like the Desmids, they possess a spontaneous power of motion, and their process of conjugation is also similar, the walls of two contiguous cells breaking down at the point of contact, and the cell contents extruded from each other fuse together, and form a spore which develops into a perfect frustule. In numerous cases Diatoms form the only source of food for many of the minute animals present in both salt and fresh waters, and by their appropriation of the carbonic acid produced by animal respiration and decomposition they render the waters they inhabit better fitted for the maintenance of animal life.

The genera present in the Cochituate are the Amphora, Surirella, Synedra, Diatoma, Navicula, Cocconeis, Asterionella, Tabellaria, Stephanodiscus, Melosira, in inverse proportion in the order named, the representatives of the last three genera being very numerous, and constituting the principal objects seen in the microscopic field.

Zoöspores are motile cells developed in many species of Algæ by segmentation of the cell contents, or as the product of conjugation; in the former case the endochrome of a cell dividing into two, in the latter the endochrome of two cells uniting into one to form a spore, which is discharged. They are usually of round or ovoid form, and are furnished with cilia at one end, or, as in *Vaucheria*, over the whole surface. These appendages enable them to move about with great rapidity for an hour or two after their expulsion from the mother cell, when they gradually come to rest, acquire a cellulose coat, and develop into an organism like the parent structure. Many spores of the different forms of Algæ present in the Cochituate are to be seen in the microscopic examination of this liquid, and their extraordinary motions are likely to excite surprise in the observer not familiar with their character.

The organisms that have been described comprise all those forms that exist in our water supply in sufficient quantity to be of any importance, and it remains to consider their significance and their influence on the water they inhabit. The existence of the Amœbæ or Infusoria in any marked quantity would indicate water of unwholesome character.

The genera present in the Cochituate are those which are as often found in fresh running water as in that which is stagnant, and are represented by such a small number of individuals that their presence does not impart any essential characteristic to it. These facts also apply to the next higher class of animals, the Rotifers, and especially to the species most numerous in the Cochituate, *Anurea Heptodon*.

The Entomostraca are very fully represented, both in variety of species and number of individuals, in our liquid; they are the well-known "water fleas" that almost universally inhabit ponds and lakes, and possess many features in common with the lobster, crab, and shrimp, and

our involuntary consumption of them is attended with no worse consequences than follow the ingestion of the gastronomic *chef d'œuvres* prepared from their edible kindred.

The presence of Bacteria and Vibriones being generally associated with the putrefactive process, their marked prevalence in any water supply would indicate its unfitness for use. In the Cochituate they are only sparingly seen in connection with the fragments of decaying vegetable tissue occasionally found in it.

The habitat of the Desmids and Pediastrina is almost invariably pure and clear water; they may be sought for in vain in turbid or putrefactive stagnant waters, and the action of sunlight appears to be necessary for their free proliferation and growth. Nothing has been observed in their life-history, or the conditions under which they appear, to show that their presence in drinking water is deleterious, but on the contrary all observations indicate that their growth in water intended for domestic purposes exercises a beneficial influence on it, for the same physiological conditions prevail in the growth of these minute plants that are so well recognized in the higher vegetable structures, and which preserve the equilibrium of the assimilative processes in the animal and vegetable kingdoms. Drinking water for cities is generally drawn from lakes or ponds, which, from the nature of their surroundings, must always receive much decaying vegetable material, if not animal matter in like condition. This gives rise to large quantities of carbonic acid and other gases, some of which the water also derives from the air it is in contact with and from the processes of animal respiration and decomposition going on in it. If no means were provided for counterbalancing the production of the gases, these bodies of water would soon become unfit for use, but by the action of the minute and innumerable Algæ in decomposing the gases, fixing in their own substance the carbon and nitrogen, and setting free the element necessary for animal life, the water is maintained in a state of comparative purity.

The Diatomaceæ are more numerous in the Cochituate than all other organisms; they grow and develop under the same physiological conditions as the Desmids and other confervoid Algæ, and exhibit the same properties of fixing carbon and liberating oxygen.

One bad feature connected with the presence of the Diatoms in any drinking water is the tendency of the gelatinous envelope which surrounds the cells or connects them with each other towards rapid decomposition; this tendency being much more marked in the soft parts of the Diatoms than in any of the other organisms.

It is the decomposition following the death of the various plants and animals inhabiting fresh water that imparts to it the offensive odor it acquires when remaining stagnant for a time; and without doubt the bad taste and smell which periodically appear in the water supplies of

nearly all our large cities are in some way connected with the growth and decay of the numerous organisms present in them, but the exact conditions on which these are dependent we are unable to state.

In summing up the influences on the Cochituate of the microscopic organic elements present in it, it is only necessary to say that noxious organisms, animal or vegetable, exist in such minute quantity as to be without significance: the higher order of animal forms which are present in considerable number have no deleterious influence on the liquid they inhabit, and are closely allied to animals that are freely used for food; and the higher vegetable organisms, which comprise by far the greater percentage of forms in the water, are not only free from any injurious influences, but their presence is essential for preventing the accumulation of deleterious products from the various sources to which all collections of fresh water are liable.

As it comes to us in the city no matters are found in the water to indicate contamination by house refuse or sewage, but the presence of the very large quantities of organic matter shown by microscopic investigation, and the facility of rapid multiplication which this possesses, indicate the necessity of carefully protecting our water supply from all sources of pollution. The liquid may be readily freed from the organisms in it by attaching an ordinary bag strainer of flannel to the hydrant faucet and allowing the water to pass through it; the liquid thus strained is almost absolutely free from forms of any kind.

In conclusion, I would direct the attention of the student of natural history to the fertile field for observation that he will find so accessible in the water supply of our houses, the careful examination of which will give him an extensive insight into the wonderful laws governing the growth and reproduction of the lower forms of animal and vegetable life that will be a source of great satisfaction and information to those not already familiar with them. To the medical student the observation of processes so closely allied to those involved in the growth and development of the animal tissues is attended with great interest and benefit.

RECENT PROGRESS IN OBSTETRICS.

BY W. L. RICHARDSON, M. D.

Prevention of Puerperal Fever. — The idea that puerperal fever is of septic origin is rapidly gaining ground, especially in Germany, where it is now generally admitted to be a disease identical in its origin and course with septicæmia, as it appears in the surgical practice of hospitals. That rents, more or less serious in character, should constantly occur during the passage of the child from the uterus to the world cannot be doubted. These wounds are of course constantly liable to absorb the

lochial discharges, containing as they must the very material needed for originating a case of septic poisoning.

Obstetricians, who are in a position carefully to observe the convalescence of women who have been delivered in a lying-in hospital, are constantly called upon to note the sudden rise of temperature and the general febrile disturbances which frequently create no little anxiety on the part of the medical attendant, although they may subside after a few days without any serious result. Such cases are doubtless of the same origin as those well-marked cases of puerperal fever which so speedily terminate fatally. In these days, when an antiseptic method of treating operative surgical cases is recognized as the only rational method of procedure, it is not to be wondered at that obstetricians should have conceived the idea of introducing the method recommended in surgery by Professor Lister into the practice of obstetrics.

Dr. Fehling¹ (Leipsic) at one time used the carbolic spray during the labor, but owing to the fact that its use seemed to induce post-partum hæmorrhage he has since given it up, and now advises the adoption of the antiseptic treatment only during the convalescence.

The question of the septic influence of the lochial discharge has been ably treated of by Professor Kehrer,² who has made a series of experiments with the view of ascertaining the poisonous influence of normal and abnormal lochial discharges examined at different periods after parturition. The methods of conducting the investigation were by injection of the lochial fluid under the skin of rabbits, and also by the inoculation of parturient women. As regards the first series of experiments, Professor Kehrer found that in all cases the injection of the lochial fluid was followed by extensive inflammation of the cellular tissue around the point of injection. The severity of the inflammation increased in exact proportion to the time which had elapsed since the delivery. The injection of the blood which escaped from the vagina soon after the delivery was followed by no marked symptoms. The result of his experiments of the inoculation of puerperal women was that when the lochial fluid of the first and second day was used no noticeable symptoms were obtained. When a later lochial fluid was employed a decided local inflammation was produced. This inflammation was only local provided the lochia were taken from a healthy puerperal woman. Whenever it was taken from a patient in whom any puerperal disturbance had occurred, more serious and general symptoms were produced.

This result followed even though the lochia themselves appeared normal, the elevated temperature of the patient from whom they were taken alone showing the existence of some present puerperal disorder.

The question how to prevent puerperal fever is now engrossing the attention of obstetricians, especially in Germany.

¹ Archiv für Gynaekologie, Band xlii., s. 298.

² Archiv für Gynaekologie, Band xi., Heft 2.

In 1870 Dr. Bischoff (Basle) advised¹ that as soon as labor began a bath should be taken by the patient, and that during the whole of the labor the vagina should be washed out every two hours with a solution (two per cent.) of carbolic acid. The medical attendant should be careful to wash his hands in a solution (three per cent.) of carbolic acid, and should always anoint his finger with carbolized oil before making a vaginal examination. In cases where the foetus was dead and decomposed, or where the hand had to be passed within the uterine cavity, the uterus should be washed out with a solution (three per cent.) of carbolic acid. During the convalescence frequent carbolized injections should be made into the vagina and uterus for thirteen days. Any visible wounds found in the vagina should be touched with a carbolic (ten per cent.) solution immediately after the termination of the labor and a pad of wadding soaked in carbolized oil should be placed in the vagina and constantly renewed. This method has resulted admirably in greatly reducing the mortality and the numerous forms of mild puerperal diseases which were formerly of so frequent occurrence.

Professor Zweifel² (Erlangen) advises, however, a method of procedure much more simple, and one which seems to yield equally favorable results. All vaginal examinations during pregnancy are made with the hand, which has first been anointed with carbolized oil; the vagina is subsequently washed out with a carbolic solution. All visible rents in the vaginal tract are touched with a mixture of salicylic acid and starch (one part to five). Fehling suggests that in addition to this the vagina should be syringed out several times a day with solutions (one eighth to one tenth per cent.) of salicylic acid.

Langenbuch,³ Schülein,³ Richter,³ and Schücking⁴ have also contributed valuable papers, all strongly advising the use of an antiseptic treatment during the post-partum convalescence.

Professor Spiegelberg (Breslau) has, since 1874, followed this method of treatment with the result of five deaths in nine hundred labors.

Obstinate Vomiting of Pregnancy. — Dr. S. C. Busey⁵ (Washington) reports several cases in which, all other remedies having failed, he obtained decided and almost immediate relief by the use of bromide of potassium. In every case in which he has used this he has succeeded in relieving the vomiting. His rule has been to give the bromide in doses varying from thirty grains to a drachm, dissolved in beef tea, to which brandy and laudanum may or may not be added, according to the general condition of the patient. This is to be given in enemata every four

¹ Correspondenz-Blatt für Schweizer-Aerzte, 1875, 22, 23. Medical Times and Gazette, March 30, 1878.

² Berliner klinische Wochenschrift, 1, 1878.

³ Berliner Zeitschr. f. Gel. und Gyn., 11, 1, 1877.

⁴ Centralbl. für Gynaek., 111, 1877; and also Berliner klin. Wochenschrift, 26, 1877

⁵ American Journal of Medical Sciences, January, 1878.

hours until the nausea and vomiting cease, and until the stomach can retain some simple nutritious food, and stimulants if there is any necessity for them. After that the bromide should be gradually withdrawn by a lengthening of the intervals between the enemata. The idea of this use of the bromide of potassium had been suggested to him by Dr. Girabetti, who had obtained excellent results from its use.

The Management of Tedious Labors. — Dr. G. Hamilton (Falkirk) gives¹ the result of his experience in the treatment of thirteen hundred and seventy-one successive births with only three foetal deaths. With some of his conclusions we cannot agree, as, for example, his strong predilection for straight forceps over the double-curved forceps now so universally used in obstetric practice. Some of his practical rules are, however, so well stated that we desire to call the attention of the profession to them. He considers that it is the length of the labor which especially proves hurtful to both mother and child. The first stage of labor should be little, if at all, interfered with, but its length should be a guide as to the second, which should not usually be allowed to be prolonged much beyond two hours, and even less when the first stage has been long and exhausting. The shortening of the second stage can be effected by supporting and pushing up the uterus over the head, or by the use of the forceps. If the head be high up the forceps should be applied, and when the head has been made to advance into the pelvis the instrument should be taken off and the blades be reapplied over the ears. Anæsthetics or ergot should never be given in the first stage, and in the second stage as seldom as possible. The former should be used only near the close of labor, and the latter with a view of increasing the pains and thus bringing the head within reach of the forceps, or else at the close of labor with a view of anticipating a threatened hæmorrhage. The application of forceps within the uterus should be avoided as much as possible, and this use of the forceps can often be escaped by assiduously pushing up the uterus with the fingers or hand both anteriorly and posteriorly. In this way the application of the instrument is made easier, and the risk to the mother is lessened. Whenever the face is to the pubes it is to be remembered that rotation to the left is sometimes easier than to the right, owing to the fact that the occiput encounters the rectum when the face is turned to the right. In cases where a post-partum hæmorrhage occurs, and supra-pubic pressure and the emptying of the uterus of clots have failed, he advises the use of pressure and counter-pressure by the introduction of the right hand under the uterus, while the left is placed above the pubes.

Choice of the Leg in Version. — Dr. A. L. Galabin contributes² an

¹ Obstetrical Journal of Great Britain, June, 1878.

² Transactions of the London Obstetrical Society, vol. xix., page 239

elaborately prepared paper, in which he discusses from a scientific and mathematical stand-point the relative advantages and disadvantages in the choice of the upper and lower leg in performing the operation of version. The conclusions which he arrives at are that by choosing the lower knee the following advantages are gained : —

(1.) The rotation of the fœtus on its antero-posterior axis by means of the lower leg is generally effected at a greater mechanical advantage, and therefore by a less force, than the combined rotation on its transverse and longitudinal axis by means of the upper leg, while it is sufficient to produce an elevation of the shoulder unless the fœtus is dead and flaccid, or the uterine rigidity extreme, and the upper leg may, with no diminished advantage, be afterwards brought down if required.

(2.) If the lower leg be taken, and a noose placed upon the pro-lapsed arm, the operator has complete command of the anterior arm in the subsequent extraction.

(3.) By taking the lower leg the more usual dorso-anterior is not converted by the version into a dorso-posterior position, a point of minor importance, but one which may, in some cases, be worthy of consideration.

Is Syphilis communicable through the Milk? — With a view of obtaining facts bearing on this important question Dr. R. Voss¹ inoculated three prostitutes with the milk expressed from the breast of a syphilitic woman. The first was herself syphilitic, and the result, as was anticipated, was negative. The second was suffering from an attack of urethritis, and no effect followed the experiment. The third was a young girl, sixteen years of age, who had never had syphilis. She entered the hospital September 16th with urethritis. The milk was injected subcutaneously on the 27th. The immediate result was the formation of an inflammatory swelling, which soon became an abscess, and which was healed October 24th. On the 3d of November (forty days after the injection) a papular eruption appeared around the point of the injection, and five days later a maculo-papular syphilide appeared on other portions of the body in addition to an adenitis. The patient was at once treated with mercurial inunctions, and all of the syphilitic symptoms rapidly disappeared. From this Dr. Voss considers that there can be no question but that syphilis can be communicated by the milk as well as by the blood.

¹ Petersburg med. Wochenschr., 23, 1876. New York Medical Journal, February, 1878.

PROCEEDINGS OF THE OBSTETRICAL SOCIETY OF BOSTON.

C. W. SWAN, M. D., SECRETARY.

JANUARY 13, 1877. *Very Painful First Stage of Labor; Overdose of Chloral; Convulsions; Forceps; Death of Baby on the Fourth Day; Peritonitis; Recovery; Strain of Sacro-Iliac Joints.* — DR. STEDMAN reported the case.

In the autumn of 1873 I delivered Mrs. A B C, a healthy, dark-complexioned American woman, by craniotomy. A year after, a live boy was extracted by means of the long forceps. Having been engaged to attend her in her next confinement, I was sent for on the 22d of November last, and saw her at noon. She had been suffering considerably during her pregnancy, chiefly from abdominal pain and difficult locomotion, which last had never wholly left her since her first childbed, when I judged that there was separation of the pubic articulation during her very severe labor. At noon of the 22d she reported hard pains during the night, increasing up to the time of my visit, and it was noticed that the pulse was quickened. Digital examination discovered the cervix uteri to be three fourths of an inch long, and the os dilated enough to admit the end of the finger. It seemed as if she had not gone her full time, but she declared it was at least two days over. There was vomiting, but no show, no feeling of distended membranes; the contractions of the uterus could be felt through the abdominal walls; pains were severe; the head presented. An opiate was left, and at three o'clock she was seen again. There was no change, except that the pains had grown exceedingly violent, as if the head were passing the perinæum. She was ordered some food, half an hour after which she was to have fifteen grains of chloral every twenty minutes for an hour, and to call me if there were any change. At eight o'clock a breathless messenger tore into my house with a summons to come at once if I desired to see Mrs. A B C alive, as she had had a fit and was breathing her last. On reaching the house it was found that instead of getting forty-five grains of chloral in an hour she had had ninety. I was reassured on observing that her symptoms were the reverse of narcotic, those due to the chloral being a sense of numbness and undue size of her head, the strangeness of which feelings had brought on a hysteric fit. Not knowing quite what the chloral might be doing, a full mustard emetic was sent in quest of it; nothing was ever afterwards heard of the chloral or the mustard, and the vomiting which had pursued her for the past day or two stopped. There was no alteration of the os, though the pains were severe; it was not till midnight (six hours after the large dose of chloral) that the os uteri, which had been firm but not rigid, and could be encouraged by the insertion of a finger, began to open. At one o'clock the membranes were felt to be tense, and ruptured themselves during a pain, after which the os was lubricated and expanded. The presentation was right occipito-posterior. Ether was now given, having been withheld up to this time by my experience of its power in hindering this patient's former labors, enforced by knowledge of the ninety grains of chloral in her system

As soon as she came under the effects of ether the pains were less frequent and effective, while the head, which now lay transversely, did not advance in proportion to the uterine contractions. I tried to apply the straight forceps over the child's ears, but could not fit the forward blade under the pubes, so the long forceps was put on by the pelvic curve. Decided traction was made, and after a few efforts the right blade swept upwards under the pubes, by natural rotation of the head, and threatened to cut into the urethra. The instrument was therefore withdrawn, refitted to the sides of the fetal head (now corresponding to the sides of the mother's pelvis), and delivery was completed, five hours after the waters escaped and eighteen hours after labor began. The uterus contracted well, the placenta was expelled in a few moments, and the pulse was good. The marks on the baby's head showed where the forceps had clipped it, — first over the brow and occiput, and the second time embracing the ears; the head was round, of remarkably good shape, and to appearance not damaged. But the infant did not do well; it vomited changed blood the next day, and did not feed; when two days old it had repeated tonic convulsions, the face drawn to the left, and died on the fourth day. On the fifth day Mrs. A B C, who had been persecuted by severe after-pains, now lessening under quinine, was attacked by a prodigious chill, followed by severe abdominal pain and swelling, with fetid lochia. Pulse 125. Temperature $103^{\circ}+$. On the sixth day she had convulsions, some of which I saw, with purple face and tonic spasm, following paroxysms of pain, which came oftener and severer, with vomiting; knees drawn up, and pulse 130. On the seventh day her face was pinched, eyes fixed, pupils contracted. There was constant vomiting, a very tender and swollen abdomen, retention of urine, suppression of milk and lochia. Digital examination betrayed no local lesion, except a hot and tender vagina and cervix. The convulsions, which continued, were not supposed to be eclamptic, but she was said once to have bitten her tongue. She was hardly expected to live, but on the eighth day there was a remission of symptoms. On the ninth the pulse ascended. On the tenth she appeared convalescent; the belly had subsided, there was some show, the tongue cleaned, the pain, though not subdued, was less frequent. This improvement continued a day or two, when straining to pass a motion (contrary to orders) brought a renewal of pain and fever. This was mastered in two or three days. Sitting up caused pain down the thighs, in the left iliac region, and aching of the top of the head. Digital examination revealed no uterine or pelvic lesion, but ten weeks after labor she was in bed with tenderness of the pubic and sacro-iliac junctions.

The treatment of the peritonitis was by aconite and quinine, with full opiates, the catheter, washing out of the vagina with carbolic acid lotion, and all the support of food and stimulus that could be borne. The treatment of the strained pelvic joints was by a tight belt and rest.

The natural rotation of the head under traction would hardly have attracted notice had not instructions been given by authorities to produce this movement by means of the instrument. The reader had never followed such rules, having always found that the head took its own turns if any were needed. The best example of rotation he had ever observed was in the case of a stout multi-

para where he expected long delay, in whom the foetal head was found in a right occipito-posterior position. While the finger rested upon the anterior fontanelle a strong pain occurred, and the head made a quarter of a turn: a succeeding pain completed the rotation to an anterior position, and the child was born by the natural efforts.

DR. FIFIELD asked Dr. Stedman what his experience had been with quinine for after-pains.

DR. STEDMAN replied that five grains given every three hours had had a good effect in this case.

DR. BIXBY asked if the uterus should not have been washed out as soon as it had become offensive.

DR. STEDMAN said it would have been the proper thing to do. As it was, the vagina was kept in good order by the nurse, and there was very little odor after the first washing. He had no notes of the condition of the urine in this case, but the result of the examination was negative. He had seen of late so many cases in which both albumen and casts had occurred without causing any unfavorable symptoms, during or after labor, that he was ceasing to regard it with the apprehension he used to feel.

Vesical Calculi; Autopsy.—DR. BIXBY read the case.

I was requested by Dr. H. I. Bowditch to see Mrs. W., suffering from some derangement of the urinary organs. The patient, of medium stature, sallow and emaciated, wore an expression of countenance markedly suggestive of prolonged suffering. She was fifty years of age, a native of Maryland. Death of maternal grandmother from vesical calculus, both parents from phthisis, a maternal uncle from calculus, and a sister suffering from the same affection indicated most unfavorable hereditary tendencies. Menstruation appeared at the eleventh year, and was regular but scanty. She was married at twenty, gave birth ten months later, miscarried once since, and became a widow in her thirty-ninth year. Near the climacteric, which was reached at forty-five, she commenced to suffer from dysuria and occasionally from incontinence. These symptoms increased in severity, became more frequent, and were later accompanied with hæmaturia and discharge of earthy matter. On this occasion her condition was miserable in the extreme. The incontinence had been uninterrupted for more than eighteen months, attended with pain and general discomfort. This condition of affairs, necessitating close confinement to apartments the atmosphere of which was constantly charged with decomposing urine, had made a marked impression upon her general health. The pectoral organs were pronounced healthy by Dr. Bowditch. By vaginal exploration, at a point corresponding with the neck of the bladder, the movements of the finger were arrested by a decided prominence that on the gentlest manipulation imparted a peculiar crepitant sensation. The passage of a probe into the urethra was obstructed by a firm, unyielding body situated quite within the lower portion of the urethra, at once recognized as a calculus. The diagnosis being confirmed by Dr. Bowditch, at six P. M. I introduced a medium-size sea-tangle tent, and left the patient for the night. The following morning, the dilatation being sufficient to admit without difficulty a small Charrière lithotomy forceps, with that instrument, in the presence of Dr. Bowditch, I pro-

ceeded to remove eleven calculi. Exploration of the cavity of the bladder showed a highly thickened mucous membrane. The organ was so generally contracted that the calculi must have filled it completely. By the nearness of the location of the calculi to the external orifice of the urethra, it was evident that in the efforts of nature to expel the intruders one of the larger stones had been forced into that canal, gradually dilating it, and at length destroying the tonicity of the sphincter. The long duration of the above conditions induced chronic inflammation, thickening of the walls of the bladder, degeneration of its muscular coat; hence the persistence of the incontinence, in spite of all treatment, after removal of the stones. The specimens, of uniform, slightly crescentic shape, smooth surface, and firm consistency, varied somewhat in size; the largest measured an inch in length by a half inch in thickness, the smallest a half inch in length by a fourth inch in thickness. Analysis by Prof. J. C. White showed their composition to be phosphate of lime with oxalate of lime nucleus. As a means of arresting the formation of the deposit, Dr. White advised the use of the phosphate of soda; her anemic condition suggesting the use of iron, these agents were accordingly ordered. For a brief period after the operation, notwithstanding the continuance of the ordinary symptoms of chronic cystitis, the patient seemed to experience decided local relief. Daily applications by means of the double current were immediately instituted, and at each session an attempt was made to dilate the organ by interrupting the effluent current. The patulous condition of the urethra of course rendered this procedure more or less imperfect. This treatment was pursued with scrupulous regularity for four months, the agents mostly relied upon being solution of the chlorate of potash, sulphate of zinc, carbolic acid, nitrate of silver, and tannic acid. Healthy urine, as suggested by some one, was not essayed. The result, I regret to say, was anything but satisfactory. The involuntary escape of urine had not been interrupted a single day; copious discharges of ammoniacal urine mixed with blood, pus, and scales of phosphatic matter persisted. On one of the coldest days of winter the patient, in a fit of desperation, indulged in a drive of four hours. She returned thoroughly chilled, and at once was compelled to retire. The result was a severe attack of acute nephritis and pelvic cellulitis, which in spite of all treatment ended fatally on the tenth day.

At the post mortem, in which I was assisted by Dr. Wheeler, of Chelsea, the following conditions were found: general pelvic cellulitis; complete agglutination of the external parietes of the bladder with the adjacent organs and tissues; the cavity of the viscus was contracted to a size less than three inches diameter, and was filled with pus and foul urine. Owing to the highly infectious nature of the subject the kidneys were not removed, but *in situ* exhibited signs of acute inflammation. The result in a subject with such antecedents, with long-neglected chronic cystitis, was not unexpected. From the earliest date of her sufferings she sought relief from leading physicians, East and West, whose counsels, involving change of climate, long residence at mineral springs, water cures, at great expense and no little personal inconvenience, afforded not the slightest benefit. Such a result was certainly not to be wondered at, since in the multitude of medical advisers, with a single exception, and that quite recently, none

had suggested, much less attempted, a local examination. Shortly before consulting Dr. Bowditch the patient was seen by Dr. J. C. Warren, who at once recognized the nature of her disease and proposed proper treatment. The patient was seen repeatedly by Dr. Bowditch, and in her last illness by Dr. Wheeler, of Chelsea.

DR. LYMAN asked if after the removal of the calculi the urine were retained at all.

DR. BIXBY replied that the bladder was so contracted that there was no room for contractility. The urethra was very patulous, and the urine was constantly escaping. In less than six days after dilatation the urethra had regained its usual tone, but the patient had not been able to retain her urine for years. The extent of the dilatation was such as to admit two fingers. The calculi were not fixed, but the bladder was entirely filled with them. The pain was supposed to be due to the presence of phosphatic scales upon the mucous surface.

Pneumatic Forceps. — DR. RICHARDSON showed so-called pneumatic forceps, invented by Dr. H. L. Stillman, of Usquepaug, R. I. The instrument consists of an elastic cup made of soft and moderately hardened india rubber moulded together. Attached to this is an exhaust pump by which, after the cup is placed over the presenting head of the child, the air is exhausted. The cup, after the air is exhausted, will sustain a weight of about seventy pounds. Dr. Richardson stated that he showed the instrument merely as a curiosity, and not because he believed it to be either practical or even safe. The extractive force must be exerted on the scalp, and it would seem impossible to use any considerable power without causing serious danger of a subsequent abscess or extensive injury. He stated that the inventor had told him that such an abscess had once occurred in his practice, which had thus far been limited to three cases. The idea of the instrument had been derived from an instrument invented more than twenty years ago by Professor Simpson, of Edinburgh.

Umbilical Hernia in the Fetus. — DR. CHADWICK exhibited wood-cuts of several rare forms, and explained the various theories about their production. The paper will be published in full.

Supplemental Mammary Glands. — DR. SINCLAIR stated that he had recently seen in a patient whom he attended in confinement a supplementary mammary gland of the size of a hen's egg under each arm. There was no nipple in connection with these. As the patient advanced in pregnancy these lumps became larger and gave her some uneasiness. The mammae were large, and in reference to this point Dr. Sinclair stated that he had seen a case in which each mamma from base to base across the top measured eighteen inches.

DR. FORSTER remarked that he once examined a man who had an extra nipple on one side.

DR. CHADWICK stated that he had recently seen what appeared to be an abscess of the breast discharging only milk. There was a history of acute inflammation four months previously, and the subsequent formation of pus, which had been several times evacuated by the knife. The condition might have originated in an effusion of milk into the cellular tissue about the lacteal

gland, as in a case that he had reported two years ago; or, what seemed more likely, the discharge of milk might be due to its entrance into the cavity of the abscess, owing to a lesion of one or more lacteal ducts by secondary ulceration, or by the use of the bistoury.

DR. WELLINGTON said that he had seen one case in which there was a bunch in the axilla, which was undoubtedly a lobe of the milk gland. It was first noticed by the patient about her eighteenth year. After her first confinement this lobe enlarged with the rest of the breast, but subsided in a week to its original size. At subsequent lactations it was not affected. It never entirely disappeared.

Uterine Polypus. — DR. MINOT showed a fibroid polypus which he had removed December 16th from a woman twenty-nine years old. The patient had been married five years, and was nursing her third child, which was fifteen months old, at the time of the operation. The labor was quite natural, and was followed by no hæmorrhage. Ten months afterwards, without known cause, she began to flow in large quantities at irregular intervals, though very frequently. Soon afterwards she noticed what she supposed to be falling of the womb. There was no pain. The tumor was wholly within the vagina, being connected with the interior of the womb, at the junction of the cervix with the body, by a pedicle one inch in thickness. It was drawn down by hooks, and the pedicle was severed with scissors. No hæmorrhage followed, and the patient did well. The tumor measured five inches in circumference, and weighed a little over an ounce and a half.

The interest of the case lay in the resemblance of the tumor to an inverted uterus, from which it was at first discriminated with some little difficulty, as the sound did not enter the uterus easily. But apart from the absence of any history of inverted uterus, exploration by means of a catheter in the bladder and the finger in the rectum established the diagnosis beyond a doubt.

ANNUAL MEETING OF THE NEW HAMPSHIRE MEDICAL SOCIETY.

THE New Hampshire Medical Society held its eighty-seventh annual meeting in Concord the 18th and 19th of June, President L. M. Knight, M. D., of Franklin, in the chair. After the usual routine of business was transacted, thirty new members being admitted, papers were read, by the president upon *Some of the Duties of the Profession and the Society*, and by Dr. E. E. Graves, of Boscawen, *On Risks and Responsibilities in the Practice of Medicine and Surgery*, giving a brief outline of some of the points where the law in New Hampshire and in other States bears unjustly upon the profession, fully illustrating his position by decisions from distinguished jurists.

Dr. J. P. Bancroft, of the New Hampshire Asylum for the Insane, read an able paper upon the condition of the pauper insane in the State, which was referred through a committee to the governor and council, and an abstract of which was brought to the notice of the legislature, now in session, in a special message from Governor Prescott.

Dr. William Child, of Bath, made an interesting report on surgery, of which a mere notice would fail to do his paper justice, as it was decidedly original in thought and in application.

Dr. Pray, of Dover, read an excellent paper upon the modern use of stimulants, involving the question, Has the type of disease changed? The subject was elaborated with the opinions of many of our best physicians, and Dr. Pray's conclusion was that stimulation had become a hobby with a good many.

Other papers were read and discussed, and the reports all went to show that the society never was in a more flourishing condition or doing more for the public good than at present.

A number of delegates were present from other States, Massachusetts being ably represented by Dr. Ira Russell of Winchendon, Dr. J. H. Mackie of New Bedford, and Dr. Edward Wigglesworth of Boston, while Dr. L. J. Bulkley and Dr. H. T. Hanks appeared for the state society of New York. Vermont was represented by Dr. D. F. Rugg, of Hartland, and Dr. L. Sawyer, of Springfield. In this connection I would mention that Dr. Bulkley favored the society with a paper on the use of india-rubber bandages in the treatment of eczema and chronic ulcers, and by applying the bandages to different patients illustrated his subject much to the satisfaction of the Fellows. Dr. Bulkley recommends a bandage of lighter india-rubber than that used by Dr. Martin, of Boston.

The following officers were elected for the ensuing year: President, A. F. Carr, M. D., Goffstown; vice-president, T. J. W. Pray, M. D., Dover; secretary, G. P. Conn, M. D., Concord; treasurer, L. B. How, M. D., Manchester; executive committee on papers, etc., Drs. P. A. Stackpole, Dover, J. W. Parsons, Portsmouth, and A. H. Crosby, Concord.

The semi-annual meeting will be held in September at the Isles of Shoals, to which all the physicians in New England, with their wives, will be made welcome.

The New Hampshire society, like the Massachusetts association, ignores the "pathies," firmly believing that the true physician never should be trammelled by any exclusive system, or one based upon a single idea. * *

MEDICAL WITNESSES AND THE POWER OF A SUBPŒNA.

THOSE of our readers who have been peremptorily summoned to court to testify in a case with which they have had nothing to do may appreciate the following remarks made by an English contemporary in reviewing an article by F. T. Ledergerber in the *St. Louis Medical Journal*:—

"Any man who has attained a reputation for knowledge in any branch of medicine or science may be summoned to give evidence as an expert, although he may know nothing of the facts of the case, or he may not have been previously consulted. No litigant, however, would act upon this rule unless he knew from the published or expressed opinions of the expert that his testimony would be favorable to his case. By permission of the court he may be

treated as a hostile witness, and cross-examined by the counsel who summons him.

"The late Lord Campbell ruled that an expert who can give only evidence of *opinion* should not be subpoenaed, and was not bound to obey a subpoena. If, however, he can testify to any *fact* in the case, he must obey the legal mandate. The safe course for an expert is, however, to obey a subpoena under all circumstances. Then arises the question of fees. Mr. Ledergerber remarks that the German and French courts award to all experts suitable compensation. This is not the case in England and the United States. Unless an arrangement be made on receiving the subpoena there is usually great difficulty in procuring reasonable compensation, especially in criminal cases. On these occasions an expert who can testify to *facts* must obey a subpoena, be sworn, and give the necessary evidence. If, however, he have been summoned only for evidence of *opinion*, he may decline to be sworn or to give this evidence until he has received his proper fees, or a guarantee for their payment; and, as a rule, our courts will uphold this conduct on his part. It would seem that the practice in the American courts is similar. Thus, Mr. Ledergerber tells us that Dr. Dills and Dr. Buchanan, of Fort Wayne, Indiana, were on one occasion fined for refusing to give their professional *opinion* in a criminal case, in Allen County, without having been first paid or promised due compensation. They appealed, and the supreme court sustained their objection, and reversed the decision of the lower courts. It would, indeed, be a gross piece of injustice to force men eminent in any department of medicine or science to give their professional opinions without receiving proper compensation."

MEDICAL NOTES.

— We would again¹ call the attention of our readers to the treatment of sun-stroke, or thermic fever, as it has been called by Dr. Wood. The antipyretic action of the cold bath and quinine makes the seremedies exceedingly efficacious. The quinine should be given subcutaneously, as rapidity of action is necessary. One drop of dilute sulphuric acid and ten minims of water are necessary for the solution of one grain of quinine; the ordinary subcutaneous syringe could thus hold three grains.

— The announcement of the Boylston Medical Prize committee for this year shows that no prize was awarded. The questions were:—

(1.) Antiseptic Treatment: What are its Essential Details? How are they best carried out in practical form?

(2.) Diphtheria: Its Causes, Diagnosis, and Treatment.

These are offered again for competition in 1880. The questions for 1879 are:—

(1.) Are Epidemics and so-called Contagious Diseases necessarily dependent upon Material Agencies, acting through the Stomach or otherwise?

(2.) Athletic Sports, Training, Violent Exercises, etc., as now practiced by Young Men: Their Temporary or Permanent Influence upon the Health.

— The announcement of the Massachusetts Medical Society's prize for

¹ See JOURNAL, July 20 and August 3, 1876; August 30, 1877, page 251.

next year has been made by Dr. Goss. The first of these annual prizes has been carried off by Dr. Thomas Dwight, who presented a paper entitled *The Identification of the Human Skeleton*. We understand that several essays of exceptional merit competed for the prize. The following are the terms upon which the competition is based:—

The committee on publications are authorized to offer the sum of *two hundred dollars* as a prize, or honorarium, to any one Fellow of the society who shall give to the satisfaction of said committee, on or before the 15th of April next, in an essay or report (worthy of a prize), the best and fullest evidence of any original or meritorious *professional work*, done by himself during the two years next preceding said date, in experimental investigations, scientific researches, or clinical observations.

Papers may be sent to Dr. George C. Shattuck, 6 Newbury Street, Boston, on or before April 15, 1879, with motto and name, as usual in such cases.

— Several cases have been recorded of mortification of stumps following the use of Esmarch's bandage in amputation.

— *The Doctor* (June 1st) speaks warmly of the medical post-graduate course of Harvard University, and recommends the same to the notice of the English universities.

THE CLIMATE OF GEORGIA.

MR. EDITOR, — It may interest the valetudinary and gentlemen of leisure, living under the cold skies and pierced by the sharp winds of our New England sea-board, to know that there lies almost at arms-length, within the compass of a few short hours' travel, a sanitarium of whose climate and flora no words, or any array of facts and figures, can convey an accurate idea, — a sanitarium little known, and by consequence unappreciated, but far surpassing in all essential requisites those usually sought by our countrymen in Europe.

The State of Georgia covers four and one half degrees of latitude, reaching from the thirty-fifth parallel nearly to the tropics. Its greatest length is of course from south to north, the altitude increasing with the latitude, and thus supplying all the conditions of variety in climate and productions. At the south, rice, cane, and cotton are field crops, and among the tropical fruits the orange and banana are just reached. As we go higher into Middle Georgia cotton is the leading "money" crop, supplemented by corn, wheat, oats, etc., the oats being unsurpassed in nutritive value. Of vegetables the variety is almost unbounded. Of fruits there are figs, pomegranates, grapes, muscadines, apricots, melons, quinces, plums, apples in all parts of the State except near the coast, the usual wild fruits being abundant, and among them the well-known luscious scuppernong grape, the wine of which is justly praised.

But I wish to call attention more particularly to the climate of Middle Georgia, and its wonderful adaptation to the needs of those who for health or pleasure seek a milder and more temperate clime than that of our northern latitudes.

The three great points of interest in climate are the temperature, the rainfall, and the winds. Dr. Janes, speaking for the State, says:—

"For the year round the climate is fine. It is fine for out-door work or in-

door work, for winter or summer crops. On the temperature map the mean annual temperature below a line joining Augusta on the eastern border and Columbus on the western border would be between 68° F. and 64° F.; between the same line and a line running nearly parallel to it on the north, passing twenty miles below Atlanta, from 64° F. to 60° F.; on still another parallel, further north and including Atlanta, between 60° F. and 56° F.; Upper Georgia betwixt 56° F. and 52° F. The entire range of mean temperature, not including the mountains, is therefore about 16° F."

The winter climate of Middle Georgia is particularly delightful on the high pine lands. The air is balmy, dry, and healing, the winds seldom high and never piercing or chilly, the rainfall very light. Snow seldom falls. In 1870 it fell upon two days; in the winter of 1871-72, nine days; 1873, one day; 1874, no snow; 1875, no snow; 1876, no snow; 1877, no snow. The thermometer rarely falls below 30° Fahrenheit. Light frosts are, however, frequent in December and January, and give a bracing character to the atmosphere, the want of which is generally so much felt by Northern invalids. The soil is sandy, and quickly absorbs all moisture. Life out-of-doors is practicable, comfortable, and delightful the entire winter. In my own family the children have not been detained in the house by reason of the weather but four or five days from December 20th to this date. The evenings are free from dampness or malaria on the high lands, and the verandas are in use during the whole year. It is a great mistake to suppose that malaria in our Southern States cannot be avoided. On the low lands in summer and autumn it is omnipresent, and those who are obliged to work or live upon them absorb it in the blood and seldom get rid of it. Its effects are more uncomfortable and fatal in the season of decaying vegetation, but being retained in the system of those who have been exposed it makes its appearance at any season if there be an exciting cause, such as a sudden cold, etc. But the Northerner who has never been exposed to a malarious atmosphere can live anywhere in the South in the season of frosts without fear; but of course being free to choose he would naturally select his habitation on the higher lands in a drier atmosphere. The residences of those who are able are generally placed in such positions, and where malaria is unknown. My own dwelling is situated about ten miles from the city of Augusta, on the high pine lands forming the basin of the Savannah River. These sandy hills inclose and follow its course for miles on either side at varying distances. In prehistoric times, undoubtedly, the waters of the Savannah washed their feet. Here, far above the dampness and malaria, are innumerable building sites commanding beautiful and extensive views in a climate unsurpassed, and in a country where building, living, and wages are as cheap if not cheaper than in any other part of our country. There are Northern men here now who have been farming these lands, swamp and upland, for years who have never had a case of malarial disease in their families. Diphtheria, the scourge of our Northern cities, is very rare out of the large centres of population, while in Massachusetts it seems to afflict town and country alike. The winter climate is of course much warmer and the summer range of the thermometer lower than at the North, the difference in length of days increasing the summer range in the more northern latitudes. "At New York, in midsummer, the days are very nearly one hour longer than

at Savannah, at Quebec one hour and a half longer, and the nights correspondingly shorter; in consequence there is at New York one hour longer for heat to collect from the direct rays of the sun, and one hour less in the night for the accumulated heat to be carried off by radiation."

"The *distribution* of heat is, however, more important than the mean annual temperature. The latter may be very moderate and promising, but characterized by excessive heat in summer and excessive cold in winter; but these diversities are not observed in Georgia. The extreme range is nearer to the mean than in more northern climates, and sudden rises or falls of temperature are very rare. The extreme heat which causes sunstrokes seldom occurs, and they are very rare."

The village of Summerville, three miles from Augusta, is situated on one of these sand hills, and has acquired a reputation outside of the State for its salubrity and healthfulness. A gentleman with a large family of young children informs me that he has resided there five years, and has never had occasion for the services of a physician. In fact, his services are very seldom required, excepting by those non-residents who bring their diseases with them. The village is chiefly composed of the houses of gentlemen, and the society is cultivated and attractive. The beautiful grounds and finely-kept buildings of the United States Arsenal occupy one of the finest sites, and command an extensive view, including the city of Augusta far below, the valley of the Savannah, and the high lands of South Carolina.

On the summit of one of these South Carolina hills is Aiken, twenty miles distant, and one of the best-known resorts in the South; it is high and dry, but in December and January bleak and windy, and those invalids who have tried both Aiken and the high lands about Augusta, including Summerville, much prefer the latter, particularly in the months named. It is not my intention to write an advertisement of the environs of Augusta or of Summerville, but I mention them especially because they are more familiar to me; there are hundreds of places in Middle Georgia undoubtedly equally salubrious. The city of Augusta itself, while generally very healthy, is in a swamp, and the evenings and nights are too damp to be comfortable or healthful for invalids seeking a dry and bracing air. That your readers may have an opportunity of comparison I will give my own observations of the thermometer and weather here on the pine lands, ten miles from Augusta, and those of the signal service in Boston for that city in the months of January to April inclusive:—

JANUARY.			
Woodsides. — Daily mean	48°	Boston. — Daily mean	28°
Highest	71°	Highest	54°
Lowest	24°	Lowest	6°
Fair or clear days	23	Days on which rain or snow fell	17
Cloudy	3		
Rainy	5		
Average daily range	10°		
FEBRUARY.			
Woodsides. — Daily mean	51°	Boston. — Daily mean	31°
Highest	71°	Highest	56°
Lowest	32°	Lowest	4°
Fair or clear days	20	Days on which rain or snow fell	13
Rainy	5		
Cloudy	3		
Average daily range	10°		

MARCH.			
Woodside. — Daily mean	78.5°	Boston. — Daily mean	80.5°
Highest	84°	Highest	71°
Lowest	42°	Lowest	10°
Fair or clear days	25	Days on which rain or snow fell	16
Rainy	2		
Cloudy	4		
Average daily range	12°		
APRIL.			
Woodside. — Daily mean	69.5°	Boston. — Daily mean	47.2°
Highest	88°	Highest	77°
Lowest	56°	Lowest	34°
Fair or clear days	24	Days on which rain or snow fell	21
Rainy	4		
Cloudy	2		
Average daily range	7.2°		

To sum up: Of the one hundred and twenty days at Woodside, ninety-two have been fair or clear, twelve have been cloudy, sixteen have been rainy. In Boston snow or rain has fallen on sixty-seven.

I know of no European climate, from personal observation, at all comparable to this. Cannes, Nice, Mentone, and San Remo on the Mediterranean are subject to cold, piercing winds blowing from the Maritime Alps. The sun burns, but the shade and the winds chill. The sudden change at sunset is critical and dangerous, as is the change in midday from the glare of the sun to the damp and narrow streets where its rays never enter. The damp stone houses drive their foreign occupants into the streets for comfort, until it has become an Italian proverb that "Englishmen and dogs walk in the sun."

The climate of Florence is very similar. Rome is not often visited by chilly winds, but its climate in the winter months is frequently damp, disagreeable, and infected by malaria. Naples on the high lands is more healthy and bracing, but in the lower parts of the city, where the drains enter the sea, is malarious. It is also subject in the winter months to long, cold storms and sudden changes of temperature. Of Pau I know nothing personally, but members of my family who have spent the winter there describe the climate as humid and enervating. The climates of Algeria and Egypt are probably in some respects better than those of Southern France or Italy, but are rather difficult of approach to a majority of travelers. Of the foreign climates I have known my own preference is for that of Nice. The city is badly drained, many of the drains and sewers being open, but the frequent and sudden changes in the wind and the dryness of the air seem to carry off and absorb the miasmata, although the process is by no means agreeable to the nerves or the eye. In conclusion, a climate can be known only by *personal experience*, and not by any record of the barometer or thermometer, as the other conditions are so varying; and I respectfully suggest to our Northern physicians a trial of this of Middle Georgia, as being more accessible, and in all the details more perfect, than any European climate in which it has been my fortune to reside.

I am indebted for some of the facts given above to the excellent little work of Dr. Janes, commissioner of agriculture of the State of Georgia, entitled, *Hand-Book of the State of Georgia*, and cordially recommend it to any one desiring a more definite knowledge of the State's great peculiarities and resources.

G. R. S.

WOODSIDE, RICHMOND CO., GEORGIA, May 11, 1878.

SHORT COMMUNICATIONS.

HEAT-STROKE; TREATMENT BY COLD SPONGING.

BY S. L. ABBOT, M. D.

At this season of intense heat I have thought that the following memoranda of a severe case of heat-stroke might not be without interest to the readers of the JOURNAL.

I was called on the evening of the 2d inst., an extremely hot day, to a servant at one of the large hotels in this city. She was eighteen years of age, and had but recently arrived from Ireland. She had been at work in the hotel but a week, her occupation being in the kitchen, in the lowest part of the house, where the temperature was very high. Since morning she had complained much of being unwell; had eaten little, but had drunk large quantities of ice-water, with ginger. At six p. m. she climbed to her bedroom in the attic, exclaimed that she felt very badly, sank down exhausted into a chair, and gradually lost consciousness. When I first saw her, at eight p. m., she was breathing thirty times in a minute, each expiration being a groan, with gurgling of fluid in her throat; her face was intensely red, and her skin dry and extremely hot. A little brandy had been given her, which she had vomited. The pulse was 160, of moderate strength, and the temperature in the axilla was 109.2° F. Menstruation had commenced in the morning, and there was still a trace of it. The temperature was again tested in a few minutes with the same result.

The patient was taken to one of the airiest rooms in the house, and treatment by cold sponging was at once commenced. A rubber sheet was spread on the bed, and the patient was entirely divested of clothing. Blocks of ice were applied to the head, and the whole body and limbs were assiduously sponged with ice-water from the vessel holding the supply of ice for the head. Fanning was employed to accelerate evaporation, and as soon as the heat returned to the chilled surface the application of ice-water was renewed.

Half an hour after the treatment was commenced, at nine p. m., the temperature was 106.8° F.; respiration 44. There was convulsive twitching of the arms, a rapid thrusting out and drawing in of the tongue, with a quivering of the chin. The pulse could not be counted at the wrist on account of the twitching of the tendons. The pupils were contracted to the smallest point. The treatment was continued.

9.30 p. m. Temperature 103.3° F.; respiration 44; pulse 152. Pupils dilated, not contracting under the stimulus of light. Every breath a groan. Vomits profusely.

10.15 p. m. Has had a general convulsion, with vomiting of brownish fluid and a profuse liquid evacuation. Pulse 140, weak; respiration 36; temperature 102.2° F. Convulsive twitching of arms continues. Gave subcutaneous injection of twenty minims of brandy. The swabbing with ice-water was continued.

10.45 p. m. Temperature 102.4° F.; respiration 33. Gave thirty minims of brandy subcutaneously, and five minutes after the pulse was 135, regular, but weak.

11.05 p. m. Patient much more quiet. Groans very little. Gave subcutaneous injection of an eighth of a grain of sulphate of morphia. Treatment relaxed a little.

11.20 p. m. Temperature 103.2° F.; respiration 28; pulse 120. Has vomited a little mucus. Sleeping quietly.

11.40 p. m. Injected one sixth of a grain of sulphate of morphia.

11.45 p. m. Temperature 103.2° F.; respiration 24; sleeping.

12.20 a. m. Still asleep. Respiration 22.

12.40 a. m. Awoke with violent retching, vomiting of a little mucus, and had convulsive movements of arms. She soon became quiet and slept most of the time until six a. m. of the 3d, at which time the temperature was 102.6° F., the pulse 96, and the respiration 18. She was still unconscious. At 10.30 in the same condition, but had had no spasm. Temperature 102.4° F.; pulse 90; respiration 16. Ice-water treatment to be continued *pro re nata*. At 5.45 p. m. still sleeping. Cannot be roused, but resists effort to separate eyelids. Pupils contracted. Temperature 103.8° F.; pulse 111; respiration 24. Has had no vomiting or purging. Resume active bathing. 6.30 p. m. Temperature 103° F.; pulse 90; respiration 20. Injected six grains of sulphate of quinine subcutaneously. At 9.30 the temperature was 102.3° F.; pulse 84; respiration 18. Has not swallowed liquids offered to her, but has drawn up the sheet about her.

July 4th, 9.30 A. M. Slept well, opening her eyes at times, and speaking, but not knowing people about her. Now smiles and speaks, and seems to recognize her friends. Temperature 101.6° F.; pulse 76; respiration 16. Has drank greedily a third of a tumbler of milk, but vomited it at once, mixed with bile. Says she has no headache. Catamenia returned in the night, and are now profuse.

July 5th. Convalescence progressing. The tongue has become clear, appetite is returning, but there is still some fever. During the night her mind wandered a little. There is a moderate cough, and there are sonorous râles in both chests. She is taking sulphate of cinchonidia, two grains every three hours. Her mind at present is quite clear. Has no pain. Says she is hungry. The pulse is 84, and the temperature 101.8° F., at eight P. M.

July 6th. Had a good night. Pulse 75; temperature 99.6° F. Makes no complaint but has little appetite. Mind dull, sluggish, but rational.

The point of special interest in this case, which seemed at first a perfectly desperate one, is the complete efficiency of applications of ice-water to the patient without removing her from the bed, showing that the luxury of a bath-tub is not necessary to the successful treatment of even the worst cases.

COMPARATIVE MORTALITY-RATES.

	Estimated Population, July 1, 1878.	Deaths during week ending June 29, 1878.	Annual Death-Rates per 1000 living.		
			For the Week.	For the Year 1877.	Mean for ten Years, '68-77.
New York.	1,093,171	554	26.35	23.42	28.71
Philadelphia.	876,118	321	19.05	18.80	21.54
Brooklyn.	549,438	232	21.96	21.51	25.50
Chicago.	460,000	102	11.53	17.83	22.39
Boston.	375,476	136	18.83	20.10	24.34
Providence.	100,000	31	16.12	18.81	19.20
Lowell.	55,798	17	15.84	19.09	22.50
Worcester.	54,937	17	16.09	14.07	22.30
Cambridge.	53,547	12	11.65	18.69	20.83
Fall River.	53,207	14	13.69	21.35	24.96
Lynn.	35,528	12	17.57	20.42	19.67
Springfield.	33,981	7	10.72	16.02	19.77
Salem.	27,140	10	19.16	20.38	21.15

GYNÆCOLOGICAL SOCIETY OF BOSTON. — The next regular meeting of the society will be held at the Evans House, second Thursday of July, at three o'clock, P. M.

Paper expected from J. G. Pinkham, M. D., of Lynn: A Case of Hysterical Labor.

Profession cordially invited at 3.30 o'clock. HENRY M. FIELD, M. D., *Secretary*.

APPOINTMENT. — Dr. George M. Garland has been appointed professor of thoracic diseases in the medical department of the University of Vermont.

BOOKS AND PAMPHLETS RECEIVED. — The Value of Electrolysis in the Treatment of Ovarian Tumors. By Paul F. Mundé, M. D., New York. (Gynæcological Transactions.) 1878.

The Atlantic Islands as Resorts of Health and Pleasure. By S. G. W. Benjamin. New York: Harper and Brothers. (For sale by A. Williams & Co.)

Fowne's Manual of Chemistry. From the twelfth English edition. Philadelphia: Henry C. Lea. (For sale by A. Williams & Co.)

A Case of Vaginal Ovariectomy. By William Goodell, A. M., M. D., Philadelphia. (Reprint from Volume II. Gynæcological Transactions, 1878.) Houghton, Osgood & Co.

How to take Care of our Eyes. By Henry C. Angell, M. D. Boston: Roberts Brothers. 1878.